

**Promoting Key Family Practices of Common Childhood Illnesses  
among Mothers with Under-Five Children in Selected Military Communities**

*Ni Ni Aung<sup>1\*</sup> & Kay Thi Tun<sup>2</sup>*

<sup>1</sup>Military Institute of Nursing and Paramedical Sciences, Mingaladon  
<sup>2</sup>No. (1) Defence Services Obstetrics, Gynaecology and Child Health Hospital  
(300 Bedded), Mingaladon

Mothers are fundamental caregivers for under-five children and thus, family participation in child health services is very important. Therefore, a quasi-experimental study for promoting key family practices of mothers with under-five children was conducted among 278 respondents from Oaktwin Cantonment and Inndaing Cantonment in 2014. Data were collected by face-to-face interview with pretested structured questionnaire. Health promotion program including health education and advocacy for unit supports was implemented in study group. Before intervention, baseline data of respondents and pre-intervention knowledge and practices levels were identified. In the three-month and six-month after interventions, post-intervention data collection was done in both groups and data were analyzed. Findings show that there was a statistically significant difference of knowledge and practice scores between study group and control group after three-month interventions ( $t=10.827$ ,  $p<0.0001$ ,  $\eta^2=0.297$  and  $t=8.2$ ,  $p<0.0001$ ,  $\eta^2=0.195$ , respectively), and six-month post-intervention ( $t=10.035$ ,  $p<0.0001$ ,  $\eta^2=0.267$  and  $t=8.773$ ,  $p<0.0001$ ,  $\eta^2=0.304$ , respectively). Moreover, knowledge and practice level within study groups have a significant effect for time ( $F=160.45$ ,  $p<0.0001$  and  $F=113.06$ ,  $p<0.0001$ , respectively) and the magnitude of this effect was also large ( $\eta^2=0.699$  for knowledge and  $0.621$  for practice). At the same time, knowledge and practice of control group have a significant effect for time ( $F=3.648$ ,  $p=0.029$  and  $F=19.564$ ,  $p<0.0001$ , respectively) but this effect was very small. It can be asserted that health promotion program can improve the knowledge and practice of mothers regarding key family practices. The findings of current study might be a cornerstone for improvement of maternal knowledge and practice on caring for children in the military community.

*Keywords:* Under-five children, Key family practices, Maternal knowledge, Common childhood illnesses

## INTRODUCTION

Effective management of childhood illness involves a partnership between families and health workers. In Myanmar, children are usually cared for by their parents especially mothers. In that, their knowledge and practices regarding child care are essential in reducing morbidity and mortality of under-five children, otherwise they will practice unhealthy behavior in child care. In 2012, the under-five mortality rate in low-income countries was 82 deaths per 1,000 live births - more than 13 times the average rate in high-income countries. In Myanmar, under-five children mortality was 52 per 1,000 live births in 2012 while 48 per 1,000 live births in global

and 50 per 1,000 live births in Southeast Asia Region (SEAR), respectively.<sup>1</sup> The leading cause of morbidity and mortality among under-five children are acute respiratory infection (pneumonia), malaria, diarrhoea and central nervous system (CNS) infection.<sup>2</sup> The burden of these diseases on under-five year children can be easily reduced by simple and affordable intervention such as oral rehydration therapy, breastfeeding, hygienic practices and appropriate home treatment that are identified in key family practices.<sup>3</sup>

---

\*To whom correspondence should be addressed.

Tel: +95-95025020

E-mail: niniaung863@gmail.com

DOI: <https://doi.org/10.34299/mhsrj.00940>

It is also described that nurses can help a client to find the best possible care solution by assessing the client's level of knowledge, and discussing the client's beliefs and wishes.<sup>4</sup> Therefore, mothers' knowledge and practices were examined in this study and then further interventional activities were carried out based on the mothers' level of knowledge.

Moreover, to improve cognitive and affective functions of the child, the mother is advised on how to recognize the danger signs which indicate that the child needs to be treated immediately at the hospital; feeding practices are assessed and the mother is advised on how to best feed her child whether the child is ill or not. These issues are trained to those mothers and encourage them to practice to achieve psychomotor skills in child caring. These skills enhance development of self-confidence and empowerment in practising key family practices.

The more the mother gets knowledge on child care, the more the choices of health care services for their children, will be obtained and consequently, can reduce the illness burden. Therefore, this study aimed to enhance key family practices by providing health promotion program. It can be asserted that this improvement reflects their empowerment on taking care of their children and consequently, it can be expected that the incidence and severity of common childhood illnesses can be reduced.

## **MATERIALS AND METHODS**

### *Study design*

A quasi-experimental study (nonequivalent control group) design was used. In this study, Oaktwin Cantonment and Inndaing Cantonment were selected as study group and control group, respectively. In order to identify the effectiveness clearly and to know the maximum duration of the knowledge retention in the community, evaluation of this program was done at three-month, and six-month post-interventions.

### *Study setting and study period*

This study was carried out from July 2013 to April 2014. Total ten units were selected for this study; five units from Oaktwin Cantonment (study group) and five units from Inndaing Cantonment (control group).

### *Study population and sampling method*

All mothers who have under-five children and residing in Southern Command Area and Yangon Command Area were target population of this study. However, mothers who are health care personnel or mentally ill or hospitalized were not included in this study. Required sample size was selected randomly from respective unit. A total of 278 respondents (n=138 for study group and n=140 for control group) included in this study.

### *Data collection method and tools*

Face-to-face interview with structured questionnaire was used for data collection. The instrument for data collection was constructed based on trainer's manual on Integrated Management of Childhood Illness (IMCI), technical update of the guidelines on childhood, illness, evidence and recommendations for further adaptations (WHO 2005), and IMCI household survey questionnaire on 12 key family practices (1999). This questionnaire was validated by consulting with the supervisor, Professor and Senior Consultant Paediatrician, for content validity of the questionnaire. The reliability of the questionnaire was high, which was shown by the Cronbach's Alpha value 0.75.

### *Data collection procedure*

Firstly, the permission from the authorities of Oaktwin Cantonment and Inndaing Cantonment was obtained before conducting the data collection. The comprehensive information about the purposes, procedure, and the rights of the respondents and the benefits of this study were informed to all respondents and then, informed consent form was obtained.

In providing health education, pamphlets, posters and power point slide show were used. Study group was divided into three groups and these groups were demonstrated how to prepare oral rehydration salt (ORS) and how to use insecticide-treated mosquito nets. There were eight health education sessions and each session took about one hour and discussion session took half an hour for clarification and answering further questions. After health education session, all respondents were provided with booklets about maternal and caring practices for under-five child in the family produced by the Ministry of Health.<sup>5</sup>

## Data analysis

Prior to data collection, data entry, data cleaning and processing were performed by using Statistical Package for Social Science (SPSS) software version 20 for windows. Firstly, the socio-demographic characteristics of respondents and baseline knowledge and practices of mothers with under-five children were identified with mean, median and standard deviation. Chi-square test and Fisher's exact test were used for comparative analysis of demographic characteristics measured by nominal scale between study and control groups before intervention. Parametric test, t-test was used for comparative analysis and mean knowledge and attitude scores between pre- and post-interventions as well as between study and control groups. In this study, the comparison of knowledge and practice mean scores on three different times was identified by using repeated measure ANOVA.

### Strengths and limitations of the study

This study used quasi-experimental study design with control group. Thus, the effect of intervention could be observed significantly in comparison with control group and this study design helped to reduce internal validity of the study. The evaluation of the intervention was conducted in two periods of time: three-month and six-month post-interventions, and thus, it could point out the most appropriate time for repeated health intervention for sustainability of the effect of intervention. In this study, data for practice of mothers with under-five children regarding key family practices were not observed and those data were assessed by face-to-face interview with structured questionnaire.

### Ethical considerations

The ethical approval from the Research Ethics Review Committee of Military Institute of Nursing and Paramedical Sciences was obtained. The informed consent form states that the participants were guaranteed certain rights, agree to be involved in the study, and acknowledge their rights were protected. The anonymity and confidentiality of respondents were maintained throughout the study. After completing the 2<sup>nd</sup> time post-intervention data collection, the respondents from control group were provided health education session for considering the ethical issue.

## RESULTS

The results focused on pre- and post-interventions knowledge and practice scores between study group and control group. A total of 278 respondents with under-five children participated in this study. Socio-demographic characteristics of the respondents are described in Table 1.

Table 1. Comparison of baseline demographic characteristics between study group and control group before intervention

Variables and categories	Study group (n=140)		Control group (n=138)		Significance	
	No	%	No	%	$\chi^2$	p
<i>Age of respondents</i>						
18-27 years	46	32.9	45	32.6	5.324	0.256
28-37 years	62	44.3	59	42.8		
>37 years	32	22.9	34	24.6		
Mean and SD	31.21		31.35		-0.162	0.871
	±6.77		±6.93		(t value)	
<i>Occupation</i>						
Dependent	126	90.0	126	91.3	0.018	1.000
Employed	14	10.0	12	8.7		
<i>Husband's rank</i>						
Private, Lance Coporal, Coporal Sergeant	78	55.7	88	63.8	101.9	0.000
Warrant Officer /III and Officer	62	44.3	50	36.2		
<i>Number of children</i>						
One child	63	45.0	54	39.1		
2-4 children	67	47.9	80	58.0	3.294	0.510
Above 4 children	10	7.1	4	2.9		
<i>Age of children</i>						
0-12 months	45	32.1	22	15.9	0.007	0.931
13-60 months	95	67.9	116	84.1		
<i>Family income</i>						
Kyats ≤100,000	101	72.1	57	41.3	13.125	0.000
Kyats >100,000	39	27.9	81	58.7		

Significance level p value <0.05

There were no statistically significant differences in most of these characteristics between two groups such as age, occupation, total number of children in the family, total number of under-five children in the family, except family income.

### Pre-intervention knowledge and practices status between study group and control group

In this study, there were not much differences in average knowledge score between study group and control group. Mean knowledge score of study group was 45.54±7.61 while 44.44±9.91 for control group. The results showed that although there was statistically significant difference in knowledge scores for study group

(M=45.54, SD=7.61) and control group (M=44.44, SD=9.91;  $t=1.033$ ,  $p=0.005$ ), the magnitude of this difference in the means was very small ( $\eta^2=0.003$ ). Thus, the knowledge status of the two groups was not much different before intervention.

Table 2. Comparison of percentage of correct response regarding pre- and post-intervention knowledge and practice status of study group and control group (selected questions)

Items	Study group			Control group		
	Pre-intervention (%)	3-month Post-intervention (%)	6-month Post-intervention (%)	Pre-intervention (%)	3-month Post-intervention (%)	6-month Post-intervention (%)
<i>Knowledge questions</i>						
Exclusive breastfeeding period	67.9	90.0	87.1	68.1	67.4	66.7
When should complementary feeding start for the child?	57.9	82.9	78.6	61.6	60.9	65.2
First dose of anthelmintics for child	61.4	78.6	68.6	37.7	31.2	28.3
Signs and symptoms of dehydration in the child with diarrhoea are						
Restlessness	44.3	58.6	58.6	15.9	14.5	14.5
Sunken eyes	55.7	75.0	79.3	39.9	38.4	35.5
Eager to drink	54.3	81.4	78.6	29.7	28.3	29.7
Decrease urine output	37.9	65.0	43.6	30.4	29.0	31.9
Sunken fontanel	30.0	50.0	36.4	15.9	14.5	14.5
How many times do you think you should have received antenatal care?	26.4	87.1	82.9	12.3	23.9	26.1
<i>Practice questions</i>						
Did you give anti-helminth drugs to your child?	71.4	76.4	74.3	65.2	57.9	60.1
Child sleep under a mosquito net during day time	70.7	97.9	97.9	87.0	85.5	86.2
If the child had fever, how did you do?						
Place in well-ventilated room	50.0	49.3	52.9	37.7	35.5	36.2
Sponging	78.6	91.4	84.3	87.0	85.5	85.5
Give antipyretics (paracetamol)	85.0	84.3	85.7	73.9	72.5	67.4
Special emphasis on child meals	25.7	60.7	63.0	26.1	23.9	29.0
Wear light cloths	60.7	65.0	60.0	50.7	49.3	44.9
Encourage child to drink more than usual during illness	32.9	63.6	50.7	32.6	32.6	30.4
Bring back to clinic for a follow-up visit	45.0	81.4	85.7	50.0	71.0	71.0

The results for study group (M=26.87, SD=3.01) and control group (M=27.79, SD=2.65;  $t$  value=-2.697,  $p=0.007$ ) indicated that there was significant difference in the mean practice scores, but the magnitude of this difference was very small ( $\eta^2=0.025$ ). Therefore, practice scores of respondents in study group and control group were not much different before providing health education program. In this study, although the pre-intervention knowledge was a little bit high in study group, their practice scores were low in comparison with control group (Table 2).

Table 3. Comparison of three-month and six-month post-intervention knowledge and practice status of study group and control group

	Three-month post-intervention				
	Mean	SD	t test	p value	Eta squared
<i>Knowledge scores</i>					
Study group	60.02	13.03	10.827	0.000	0.297
Control group	45.25	9.38			
<i>Practice scores</i>					
Study group	31.24	3.37	8.200	0.000	0.195
Control group	28.35	2.43			
<i>Six-month post-intervention</i>					
<i>Knowledge scores</i>					
Study group	59.29	13.36	10.035	0.000	0.267
Control group	45.39	9.35			
<i>Practice scores</i>					
Study group	31.06	3.28	8.773	0.000	0.304
Control group	28.04	2.36			

### Three-month post-intervention after providing health promotion program

Mean knowledge score of study group was  $60.02 \pm 13.03$ , while  $45.25 \pm 9.38$  for control group. The results of independent t-test showed that there was a statistically significant difference in knowledge scores between study and control groups ( $t=10.827$ ,  $p<0.0001$ ) and also the magnitude of this difference in the means was very large ( $\eta^2=0.297$ ). Thus, providing health promotion program in study group was very effective for improving knowledge level of respondents regarding key family practices.

Similarly, the practice level of respondents in study group was noticeably increased and the results showed that there was a statistically significant difference in knowledge scores ( $t=8.200$ ,  $p<0.0001$ ). Moreover, the magnitude of this difference in the means was very large ( $\eta^2=0.195$ ). It can be asserted that health promotion program can enhance the practice level of respondents in study group after the three-month post-intervention (Table 3).

### Six-month post-interventions

Knowledge and practice levels of study population were assessed. Mean knowledge scores of study group was  $59.29 \pm 13.36$  while  $45.39 \pm 9.35$  in control group. The results showed that there was a statistical significant difference in knowledge scores for study group ( $M=59.29$ ,  $SD=13.36$ ), and control group ( $M=45.39$ ,  $SD=9.35$ ;  $t=10.035$ ,  $p<0.0001$ ) and the magnitude of this difference in the means was very large (eta squared=0.267). Thus, health promotion program could improve notably the knowledge scores of study group (Table 3).

Mean practice scores of study group was  $31.06 \pm 3.28$  while  $28.04 \pm 2.36$  in control group. Six-month post-intervention practice scores of two groups showed that there was statistically significant difference in knowledge scores for study group ( $M=31.06$ ,  $SD=3.28$ ) and control group ( $M=28.04$ ,  $SD=2.36$ ;  $t=8.773$ ,  $p<0.0001$ ) and eta squared 0.304. Meaningfully, health promotion program improved the six-month post-intervention practice levels of respondents in study group (Table 3).

Table 4. Comparison of knowledge and practice mean scores of study and control group in three periods of time

Group	Wilks' Lambda value	F	p value	Eta squared
<i>Study group</i>				
Knowledge	0.301	160.45	0.000	0.699
Practice	0.379	113.06	0.000	0.621
<i>Control group</i>				
Knowledge	0.949	3.648	0.029	0.051
Practice	0.777	19.564	0.000	0.223

### Knowledge and practices status of study group and control group over three periods of time

Regarding the comparison of knowledge and practice scores in study group over three periods of time, the mean score of knowledge was largely increased in three-month post-intervention and then slightly decreased in six-month post-intervention. In study group, there was a significant effect for time ( $p$  value  $<0.0001$ ) and multivariate eta squared for knowledge is 0.699 and practice scores 0.621 (Table 4).

In the control group, the percentage of respondents in three levels of knowledge had not changed significantly in three periods of time, but slightly increased with good level of knowledge in the three-month and six-month post-interventions. Moreover, there was

a significant effect for time with multivariate eta squared for knowledge is 0.051 and practice scores 0.223, respectively, in control group. It may be due to the effect of pre-test sensitization as similar data collection tools were used over three periods of time in this study. In other words, selection interaction effects improved the knowledge level of control group.

## DISCUSSION

Mothers with under-five children residing in Oaktwin Cantonment and Inndaing Cantonment were selected as study population. The study demonstrated that in the intervention and control groups women were nearly equal in socio-demographic characteristics except a few; number of children in the family and presence of chronic disease in child revealed a statistically significant difference in this study.

The comparison of the average knowledge and practice scores between study group and control group demonstrated that the average knowledge scores were not much different before intervention. Among the twelve key family practices, knowledge and practices of mothers regarding childhood immunization were satisfactorily increased in all periods of study. Knowledge and practices scores of respondents in study group regarding the rest items were increased after intervention.

Previous study on nutritional status of children in military setting showed that post-intervention mean scores of study group was found higher than pre-intervention scores with a statistically significant difference in mean knowledge scores between groups ( $t=35.43$ ,  $p<0.0001$ ).<sup>6</sup> This study mentioned that this difference might be the effect of health education program provided to the study group.

Although health promotion program can enhance the knowledge and practice level of respondents in study group, those scores in the three-month post-intervention showed more increase than in the six-month post-intervention. The findings showed that providing health promotion program should be implemented at least two times a year in order to sustain the knowledge and practice levels of respondents.

These findings indicated that health promotion program could promote knowledge and practices of mothers with under-five children regarding key family practices of common

childhood illnesses. It was evident that community-based approach implementation and advocacy for community and authority support was essential for improving maternal knowledge and practices on child care as well as antenatal care.

### *Conclusions*

Only then did the mothers have knowledge, their children became healthier. Mothers are essential caregivers for their family health especially for their children. Thus, their knowledge and practice were improved by health promotion program which includes health education activities and advocacy of unit supports for child health. Although there was a significant improvement of mothers' practice regarding the key child care practices, more rapid positive changes were seen in their knowledge after intervention. That was why health promotion program might be effective for promoting the key family practices of mothers with under-five children.

If mothers have adequate knowledge on key family practices, they will have increased self-esteem and confidence in caring their children and consequently, they can provide efficient and effective care for their child health. As a result, the morbidity and mortality of under-five children will be reduced in coming years. Therefore, the findings of current study may be a cornerstone for successful implementing of child health program and services in military setting.

### *Recommendations*

Health promotion program should be delivered at least every six months a year to sustain the knowledge and practices of mothers with under-five children. In the military setting, although medical officers are assigned for 1 to 3 years in each unit, midwives and other health personnel are assigned in a unit for many years. So, the appropriate refresher course for healthcare personnel especially midwives

should be provided periodically to sustain their existing knowledge and to get updated knowledge regarding key family practices on the ground that they are first line caregivers in military community. Another participatory action research should be conducted in order to increase sustainability of knowledge and practice of mothers with under-five children regarding key family practices of common childhood illnesses among military community.

### *Competing interests*

The authors declare that there is no competing interest.

## **ACKNOWLEDGEMENTS**

Our special heartfelt thanks are owed to Professor Colonel Khin Zaw, the Research Ethics Committee and the authorities of Military Institute of Nursing and Paramedical Sciences and all those who in one way or another facilitated in conducting this study.

## **REFERENCES**

1. World Health Organization. *World Health Statistics*. Geneva, WHO, 2014.
2. Department of Population and United Nations Population Fund UNFPA. *The Health Status of South East Asia Region 2005*, Switzerland.
3. UNICEF. *The State of the World's Children 2008: Children Survival*. UNICEF, 2007.
4. College of Nurses of Ontario. *Developing Practice Standards and Guidelines 2009*. Available from <http://www.cno.org/docs/prac> accessed by 10 August 2014.
5. Ministry of Health. *Millennium Development Goals Report*. Nay Pyi Taw, Republic of the Union of Myanmar, 2013.
6. Nwe Ni Lay. A study on the effect of health education on knowledge and attitude of mothers with regard to proper infant and young child feeding in Yangon Command Area. [MNSc thesis]. Military Institute of Nursing and Paramedical Sciences, Yangon; 2007.